PhD Crisis Discourse: A critical approach to the framing of the problem and some Australian 'solutions'

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Abstract – A feature of HE reform discourse is the tendency to construct the rationale for reform in terms of averting calamity and risk. We refer to this risk talk as 'crisis discourse'. This study examines the formulation of the PhD crisis discourse internationally and in Australia. We find that a key feature of PhD crisis discourse is that universities are producing too many graduates for too few academic jobs; and graduates lack skills that enable them to be productive in jobs outside academia. In Australia, the discourse has shifted from one dominated by efficiency concerns from the late 1990s to the present focus on graduate skills and employability. The policy solution to the efficiency crisis in the Australian PhD resulted in system-wide changes in research training funding focused on increased efficiency. The current unemployability discourse has as yet prompted isolated institutional responses, the introduction of new PhD programs or re-badging existing offerings as pro-skills development offerings. Following an examination of three Australian institutional responses, we conclude that the crisis discourse signals tensions surrounding the PhD: should achievement in doctoral education be measured by outcomes in intellectual excellence or the responsiveness of qualification to the current needs and priorities of society?
Keywords: the PhD, crisis discourse, policy, employability, transferable skills

Introduction

Contemporary higher education (HE) systems function within a political context of high optimism about the transformative potential of knowledge for individuals and for national economies. The now axiomatic assumption is that education and training can make individual workers more productive, and that in the aggregate, more productive workers will stimulate and bring about national economic development. This view has come to dominate national and global policy discourse particularly with the publication of The Knowledge-based Economy by the Organization for Economic Cooperation and Development (OECD, 1996), and Knowledge for Development by the World Bank (1999). At the nutshell, knowledge

economy refers to an economy primarily driven by the production, distribution and application of knowledge.

With the prevalence of what we characterise as knowledge economy optimism, HE has become a key element of national economic policy as expressed in national innovation systems. With this has come a greater political interest in research training programs, including the PhD. Governments around the world have demonstrated that the management of the PhD is too important to be left to universities themselves. In order to justify a range of policy interventions directed towards revitalizing the PhD in line with its key role as the nursery of national innovation and economic growth, policymakers frame perceived problems with the doctorate in terms of crisis and underscore the risk of not taking action.

Viewed from a critical perspective, a policy problem exists through the identification of it as a problem in need of address through a policy response. In other words, social problems do not simply exist 'out there' to be discovered by policymakers. They are rather "constituted through particular styles of reasoning" (Bessant, Hill & Watts, 2003, p.82). Rather than reacting to 'problems' through policies, governments and other agents create 'policy problems' with the objectives of bringing the problem and its policy solution to public attention (Bacchi, 2009; Gale, 1994; Miller, 2002). The way the problem is represented or framed is informed by assumptions, ideological dispositions and the political and other interests of the actors involved. In the words of Stephen Ball (1998, p.124), policies are "ways of representing, accounting for and legitimizing political decisions" and are "articulated both to achieve material effects and to manufacture support to those effects."

Frequently policymakers highlight the significance and urgency of dealing with policy problems through constructing them in crisis form. Here crisis refers to "a condition in which failure is identified and widely perceived" and the temporal framing is perceived as urgently requiring 'a moment of decisive intervention' (Hay, 1999, p.324). Related to this,

crisis discourse refers to the mobilization of perceptions of crisis that involves a process of 'recruiting' symptoms of 'policy failures' and formulating a unified and simplified narration of the failure in a way that it initiates responses in the form of reform and strategies of intervention (Kuipers, 2006).

Policy crisis narratives are instrumental in defining policy directions and justifying interventions. As Fairhead and Leach (1997) remind us, a crisis discourse enables policy actors to legitimise already selected courses of action and to "confidently fill the gap between ignorance and expediency" (p.35). The crisis talk presents policymakers with "particular styles of cognition which 'discover' problems in particular ways" (Bessant et al., 2003, p.22). In other words, the crisis discourse can be seen as a way of representing (or re-arranging) the social world in a 'governable' fashion – as an object of urgent intervention. For instance, a crisis discourse may make it possible for government agencies and HE institution leaders to define legitimate areas of intervention in the PhD. To borrow the words of German poet Friedrich Hölderlin (1980 [1880], p.463), "But where danger threatens, that which saves from it also grows."

There is a burgeoning literature on the problems with the PhD (e.g., Evans, 2001; Evans, Evans & Marsh, 2008; Geiger, 1997; Lovitts & Nelson, 2000; McWilliam, 2009; McWilliam & Taylor, 2001; Taylor, 2011; *The Economist*, 2010). Some critics such as the editors of *Nature* magazine in the US (Editorial, 2011) and *University Affairs* in Canada (Tamburri, 2013) accentuate the urgency of dealing with the crisis. While the critical reflections of Kendall (2002) and Halse (2007) on the PhD crisis narrative have offered some valuable insights into the scope and representation of the problem, there has been little critical engagement with assumptions underpinning these crisis narratives and the issues on which they are silent.

The analysis provided in this article proceeds in four major sections. The first section briefly introduces the research approach employed in the study. The second section provides an international overview of the problems associated with the PhD. The third section covers the 'crisis discourse' in the Australian policy context; and the 'new PhD' programs in two public universities, and a doctoral training centre. The fourth section problematizes the crisis discourse and associated institutional responses.

Research Approach

In this study, we employ a critical analysis approach to policy study. A better understanding of policy impacts and the relevance of instruments require demystifying this crisis discourse. Here, following Fairclough (2003), discourse refers to the ways in which social issues are given a particular meaning in a policy process – the framing of a policy agenda (problem) as well as patterns (commonalities, differences, changes and continuities) in the representation of the agenda in narrative accounts of the problem. Apparent contradictions and taken-for-granted assumptions need to be explored in the PhD crisis narratives. To this end, we have employed a critical approach to policy study. A critical policy analysis constitutes of an understanding of the *problem represented to be* in a policy, basic assumptions underlying the strategies, and issues left unproblematic in the representation (Bacchi, 2009).

Our analysis identified key discursive constructs that reflect the way the 'problems' with the PhD are conceived in current policy discussions. We then examined underlying assumptions underpinning the major strategies in ongoing doctoral education reforms; and present the findings in a form of narrative accounts.

Qualitative data were drawn from the following policy documents and reports: *Knowledge and Innovation White Paper* (Kemp, 1999); *Employer Demand for Researchers*

in Australia Final Report (The Allen Consultant Group, 2010); *Defining quality for research training in Australia: A consultation paper* (DIISR, 2011a); *Research Skills for an Innovative Future: A Research Workforce Strategy* to Cover the Decade to 2020 and beyond (DIISR, 2011b); *National Research Investment Plan* (DIISRTE, 2012); *The Changing PhD: Discussion Paper* (Group of Eight, 2013); and *A Smarter Australia: An Agenda for Australian Higher Education 2013–2016* (Universities Australia, 2013); as well as program descriptions and contents of newly introduced PhD programs at the Australian Technology Network Universities (ATN) Industry Doctoral Training Centre (IDTC), Monash University and the University of Queensland.

Inefficiency, Deficiency and Excess in Doctoral Education

In a bid to build innovative and competitive national economies, many national governments make significant investments in doctoral education. As a recent OECD report shows, doctoral graduates are considered key players in knowledge production, dissemination and application; and in supporting innovation (Auriol, Schaaper & Felix, 2012). Knowledge economy optimism assumes a critical mass of doctoral graduates. For example, between 1998 and 2006, the average annual growth rate of doctorate degrees was 40% in China, 17.1% in Mexico, 8.5% in India, and 6.2% in Australia (Cyranoski, Gilbert, Ledford, Nayar & Yahia, 2011). Co-incident with the rise of knowledge economy discourses has been an intensification of political interest in and scrutiny of the PhD. A renewed interest in the PhD[1] means a re-evaluation of the purpose and quality of the program. Urging this re-evaluation is a crisis discourse that underscores the challenges facing governments in wresting competitive advantage from PhD programs characterised by inefficiencies, uneven relevance to national socio-economic priorities, and the questionable skill base and work-readiness of graduates.

To date, little attention has been directed to the quality of research produced in these programs.

Concerns about inefficiency in doctoral education are mainly expressed through reference to long times-to-degree and high attrition rates. This is perceived as a serious challenge to doctoral education in many advanced economies (Halse, 2007; Lee & Aitchison, 2009; *The Economist,* 2010). For example, in the US, a longitudinal study showed that among doctoral students enrolled in 1992-93 through 1994-95, the cumulative ten-year completion rate was only 57% (Council of Graduate Schools, 2008; Denecke, Fraiser & Redd, 2009). High attrition rates are another aspect of inefficiency. In European universities, only about 50% of candidates complete their doctorate (Bitusikova, 2009), prompting some HE systems to address the problem through incorporating coursework into the PhD (Huisman, de Weert & Bartelse, 2002). In the 1990s, long completion times and low completion rates were framed as serious challenges facing Australian doctoral education (Kemp, 1999).

However, crisis talk focused on the inefficiencies in doctoral education – figured in long time-to-degree and low completion rates – appears now to have transformed and crystalized in urgent concern with the relevance of the PhD as manifest in graduate employability. Notably, this is rarely registered as a problem in or with the labour market (Wilson, 2012), but as indicative of deficiencies in the graduates themselves and their education. There is a widely shared view that PhD training is too theoretical in orientation, too narrow in scope, and most doctoral graduates lack generic employability skills productively to engage in jobs outside the academia (Nerad, 2009). In an article provocatively subtitled, 'Why doing a PhD is often a waste of time', *The Economist* noted that the PhD crisis has been largely caused by a combination of declining demand (or opportunities) for doctoral graduates in academia, and graduates' lack of generic skills required for jobs in the broad economic sector (December 16, 2010). For other commentators, the 'skills deficiency' argument is insufficient to fully

explain under/unemployment of the doctorate. The problem has rather largely to do with the massification of the PhD. For instance, Barry (2005) suggests that, in a free market context, an economic return of any academic qualification partly depends on how much and what one achieves in relation to others. From this vantage point, Barry argues: "even if every adult had a PhD, there would still be a need for postmen and shop assistants" and, in such a scenario, what we would have is "The PhD who cuts the brain, the PhD who drives the train, and the PhD who clears the drain" (Barry, 2005, p.170).

Although evidence shows that many doctoral graduates in Australia and other advanced economies intend and indeed go on to work outside academia, employers express concern that doctoral graduates lack generic skills that are essential for improved productivity of 'knowledge workers' (see Harman, 2002; Nerad, 2009; The Allen Group Consultant, 2010; Wilson, 2012). While space does not permit an extended analysis of this aspect of the employability crisis, we note this perception of the problem with PhDs is not universal even in advanced economies – both Germany and the Scandinavian countries where rates of doctoral qualification per capita are high provide different accounts of the value of PhD graduates to industry.

By contrast, the PhD as excess thesis frames the oversupply of (relatively useless) doctoral graduates as another dimension of the graduate problem. The problem of oversupply of doctoral graduates is closely related with the widening gap between educational supply and occupational demand but it is also increasingly related to perceptions that doctoral graduates lack the requisite generic or transferable skills to be servicable to the demands of the knowledge economy. For example, data from 2008 shows that in the US over 27,000 PhD holders were working as retail salespersons (Vedder, 2011). In a piece published in *Nature*, Cyranoski et al. (2011) questioned if the time had come to stop producing PhD as the supply of doctoral graduates exceeded the demand in the labour market.

However, the oversupply 'problem' is an ambiguous construction. Commonly the over-supply argument draws on largely unexamined assumptions about where PhDs are best employed – with some prejudicial views that a PhD not employed in the academy is necessarily under-employed. The prejudice also emerges in some statements by employers in industry and business who see the PhD as too 'academic' to be useful for 'real world' jobs. The over-supply argument tends also to ignore the high employability of doctoral graduates in non-academics areas. At present, over 50% of doctoral graduates in the advanced economies find jobs outside academia – in industry, government, and non-profit sector (Borrell-Damian, 2009); and there is evidence showing that in countries such as Canada, PhD holders have generally the lowest rate of unemployment (Maldonado, Wiggers & Arnold, 2013).

In response to these perceived problems associated with the PhD, and with the aim of enhancing employability of doctoral graduates in jobs of diverse contexts, regional, national and institutional policy agents have supported changes in the content, structure and organization of PhD programs. We survey some examples of these changes below.

In Europe, in 2005, following the Bergen Communiqué of the Bologna Process, the 'Bologna Seminar' on *Doctoral Programs for the European Knowledge Society* set the reform agendas for doctoral education. Underscoring doctoral education primarily as a contribution to knowledge through original research, the recommendations of the seminar, commonly referred to as the Salzburg Principles, also highlight the importance of a) preparing doctorates for academic and non-academic employment; b) building transferable skills of graduates and institutionalizing career development opportunities; and c) achieving critical mass through interdisciplinary, institutional, intersectoral, regional and international collaboration (Christensen, 2005). Within five years, many European universities have restructured their doctoral programs – and overall, "Europe is emerging as a global leader in

reforming doctoral education' (European University Association, 2010, p.1). Other changes include the establishment of 'doctoral schools' in many European universities, and the expansion of university-industry collaborative doctoral programs as a way of enhancing employability of graduates (Borrell-Damian, 2009).

In the UK, concerns related to the relevance of the PhD to the need of industry and business has led to significant changes, expressed in the expansion of industry-oriented doctoral programs and the integration of employability skills training. Notably Research Councils UK (mainly Engineering & Physical Sciences Research Council, Economic & Social Research Council and Biotechnology & Biological Sciences Research Council) support industry-oriented collaborative doctoral programs through networks of Centres for Doctoral Training (CDT) and Doctoral Training Partnerships (DTPs). Although the foundation of industry-aligned doctoral programs traces back to the establishment of the Engineering Doctorate (EngD) scheme in 1992, the number of CDT has grown exponentially since the late 2000s. In addition to the traditional supervised scientific engagement, the doctoral programs in the CDT incorporate research training courses, apprenticeship experiences, and structured transferable skills training (QAA, 2011). In its *Statement of Expectations for Doctoral Training* (offered in the CDT), the Research Councils UK stresses: "Research Councils expect the provision of professional and transferable skills to form a fundamental part of doctoral training" (RCUK, 2013, p.2).

These expectations and changes have been echoed in the broad university system as well. Importantly, with the publication of the Roberts Report in 2002, career development of doctoral graduates has been a key agenda in the PhD in the UK. To prepare graduate for academic and non-academic careers, the Report particularly called for integrating transferable skills training into PhD programs in the fields of science, engineering and technology (Roberts, 2002). In response, since 2003, the Government progressively invested about $33

million per year for career development and employability skills training programs (RCUK, 2010). After the government cut the ear-marked funding (also known as 'Roberts' Money') in March 2011, many universities have continued supporting the programs (QAA, 2011; RCUK, 2010). Also, the NewRoutePhD^2 consortium has developed the new Integrated PhD program that combines disciplinary specialization and generic skills training. Similarly, in a bid to improve the employability of their research graduates, the Russell Group institutions (UK's top 24 elite universities and colleges) have taken actions to integrate transferable skills into their research training programs (The Russell Group, 2010).

In the US, there has been a range of programs and projects that aim at improving employability of doctoral graduates. Among the major initiatives are: *The Re-envisioning the PhD Project* (1998-2000), *Integrative Graduate Education and Research Traineeship* (IGERT) program, *The Responsive PhD project* (2000-2006), *The Carnegie Initiative on the Doctorate* (2001-2005) and *The Versatile PhD* (since 2010) (Council of Graduate Schools, 2008; Walker, Golde, Jones, Bueschel & Hutchings, 2008; Weisbuch, 2002; Woodrow Wilson National Fellowship Foundation, 2005). Most recently the American Historical Association (AHA) has secured $1.6 million dollars for the *Career Diversity and the History PhD* initiative which aims to establish a 'new norm' for professional development within doctoral education in history (AHA, 2014).

Similarly, in Australia, there has been extended policy discussions regarding the efficiency, and relevance of the PhD. In the next section, we closely examine broad national policy directions since the late 1990s, and three cases of change in the PhD in Australian universities.

Australian 'Solutions'

In Australia, there have been concerns about the PhD for a long period. As early as 1973, a senior civil servant was said to have complained: "the current techniques of producing a PhD pay no regard to the ever present element in employer demand" (quoted in Sekhon, 1989, p.199). In the 1980s, narrow specialization and lack of commercial orientation were among the key problems identified with the PhD (Sekhon, 1989). Since the late 1990s, spurred by intensifying knowledge economy discourses, as in other advanced economies, the Australia PhD has come under renewed scrutiny. Redolent with elements of urgency, crisis and the need for wholesale reform, commentators on the Australian PhD are in apparent consensus: "doctoral education needs to be reinvented, to be 'rapid and relevant and rigorous'" (Kendall, 2002, p.132). Here we focus on key aspects of the crisis as framed in relevant policy texts and subsequent institutional responses.

The Policy Context

In a policy process, risk talk is a way of turning "uncertainities into possibilities" (Douglas 1974, in Bessant et al., 2003, p.13). In order for a 'discovery of risk' to initiate a tangible public response, the crisis framing should highlight the severity of the problem.

> The more severe a current crisis is perceived to be, and the more it appears to be caused by foreseeable and avoidable problems in the design or implementation of the policy itself, the bigger is the opportunity space for critical reconsideration of current policies and the successful advancement of (radical) reform proposals. ('t Hart & Tindall, 2009, pp.22-23)

According to Kuipers (2006), indicators of a crisis narrative in a policy include: a) the use of the word 'crisis' to describe an undesirable situation; b) claims that the situation is urgent and

an intervention is a necessity; c) requests to the public to comply with changes in response to perceived or actual threat; and d) the use of historical analogies, metaphors and related terms and phrases to simplify the complex situation and support and enhance the perception of crisis (pp.181-182). More often than not, these indicators may not be readily available for mapping and interpretation. The way a policy problem is understood can rather be inferred from policy statements and/or strategies and instruments put in place to address the problem.

A close examination of selected Australian HE policy texts reveals that the problem associated with the PhD has been framed differently in different periods: as largely an issue of inefficiency of research training programs (in the late 1990s) and as a problem of graduate unemployability (mainly since the mid-2000s). In what follows these two themes are discussed in turn.

The 'inefficient' Australian PhD system

Throughout the 1990s, Australian doctoral education was characterised by significant expansion and diversification (Neumann, 2009). Total PhD enrolments increased from 9,000 in 1990 to 28,000 in 2000 (Harman, 2002). In terms of graduation rates, the number of PhDs annually awarded by Australian universities increased from 1,209 in 1989 and to 5,796 in 2009 (Dobson, 2012). However, in the 1990s, problems with doctoral education in Australian universities were framed efficiency issues related to long completion times and low completion rate (Noble 1994). In fact, given that in the 1990s the average completion time for local doctoral candidates was 3.7 years (Evans et al., 2008), the problem of lengthy time-to-degree seemed to be more of a perception than an empirical assessment.

These perceived deficiencies initiated a far-reaching policy response that changed government's funding arrangement for research training. In 1999, Dr. David Kemp, the then Minister for the Department of Employment, Education, Training and Youth Affairs and a former academic from Monash University, introduced a White Paper entitled *Knowledge and*

Innovation. The White Paper underscored that lack of responsiveness to the needs of the labour market, high attrition rate and slow rates of completion were among the key deficiencies of research training in Australian universities (Kemp, 1999). These problems were attributed mainly to research programs which were too narrow and too specialised, poor supervision and inadequate levels of departmental support, and limited access to quality infrastructure. Although the White Paper did not specify the PhD completion rate in Australian universities at that time, it underscored that there was an "unacceptable wastage of private and public resources associated with long completion times and low completion rates for research degree students (Kemp, 1999, p.2).

To shorten time of research candidature and improve doctoral degree completion rates (which was found to be only 53% in the 1990s), the White Paper called for a shift in the funding mechanism from one based on student load or enrolment to outcome-based funding. The proposed research training funding formula allocates 50% for completion rates, 40% for research income and the remaining 10% for publications (Kemp, 1999). In 2001, with the introduction of the Research Training Scheme (RTS), the performance-based system of funding for research and research training came into effect (Neumann, 2009). Following the new funding scheme, the period of funded candidature for the PhD shortened from 5 to 4 years (equivalent full time); and universities receive over 70% of the funding for doctoral candidates on the completion of the program (Neumann, 2009). With the strong emphasis and funding dependent on the management of attrition, progression and completion rates, efficiency took a central position in research training arrangements in Australian universities.

Graduate unemployability

The White Paper also recognised that research graduates were poorly prepared for employment. Hence it proposed an '*entrepreneurial approach to research training*' and strong university-industry collaboration so research candidates could learn 'specialist

knowledge' that exists in 'commercial settings' not just in universities (Kemp, 1999, p.3). However, changes actually initiated by the White Paper were limited to addressing problems related with inefficiency in research training programs.

Much has changed since *Knowledge and Innovation*. Most importantly, knowledge economy optimism has deepened and become pervasive; and questions related to the relevance of the PhD expressed through concern with the employability of research graduates have become a key policy concern (e.g., Bradley et al., 2008; Australian Government, 2009, 2012; DIISR, 2011b; DIISRTE, 2012). Commissioned studies and policy reports since the mid-2000s have transformed the crisis in the PhD crisis into one which inheres in graduate *skills deficiency* and the subsequent problem of *graduate unemployability*. The crisis discourse now underscores the gap between skills doctoral graduates acquire and competencies required by employers outside the academy.

In 2004, the Department of Education, Science and Training (DEST) commissioned a study on PhD graduates at Group of Eight (Go8) research-intensive universities[3]. The study surveyed doctoral graduates five to seven years after graduation. One of the findings of the survey highlighted that PhD graduates lacked generic skills required for workplace productivity; and that employability outcomes of doctoral graduates depend on career-related skills acquired during the PhD training (Western et al., 2007). Drawing on submissions from business and industry, the Bradley Report highlighted the concern among employers about HE graduates' lack of generic employability skills such as written and oral communication and interpersonal skills (Bradley et al., 2008).

In 2010, the (re-badged) Department of Innovation, Industry Science and Research[4] (DIISR) commissioned the Allen Consulting Group to investigate employer demand for researchers in Australia with a guiding question: What researcher skills do employers seek?

The study of employer demand for researchers in Australia indicated that most doctoral graduates are experts in their fields but they lack soft skills required for the workplace.

> […] it has been suggested that traditional training programs often do not provide candidates with the necessary [generic] skills to effectively manage external stakeholders and deliver outcomes for a broad range of research users. (The Allen Consulting Group, 2010, p.76)

Following the report by The Allen Consulting Group, in the *National Research Investment Plan*, the Commonwealth Government further highlighted that research graduates lacked key generic skills such as communication, project management, entrepreneurship and teamwork (DIISRTE, 2012). In 2013, the Group of Eight produced a discussion paper entitled *The Changing PhD*. In the paper, the Group of Eight diagnoses challenges associated with the PhD from the perspectives of employers, graduates and providers. The Discussion Paper highlights job insecurity and underemployment as major problems associated with the PhD in Australia. Most importantly, it stated that in some cases PhD holders are found to be "deficient in some of the generic attributes necessary for a good employee" (Group of Eight, p.14). The Paper adds:

> […] the attributes that doctoral students develop during their PhD training are inadequate because they reduce the employability of PhD graduates or do not match the expectations that potential employers have about the attributes that such graduates should possess. (Group of Eight, 2013, p.34)

The skills deficiency narrative has been constructed against the backdrop of the need to ensure the responsiveness of research training programs to broad national agendas such as building and sustaining a knowledge-based economy. As is the case elsewhere, in Australia the PhD qualification is no more limited to its traditional career destination – that is, an academic position. There is a wider consensus that employment trajectories of doctoral

graduates have diversified and PhD training needs to be responsive to the changes. In recent years less than 30% of doctoral graduates took jobs in the academy while the majority are employed in government, business and non-profit organizations where their disciplinary knowledge and skills might not be sufficient (DIISR, 2011b). Hence the issue of graduate employability is first and foremost related to the gap between skills they develop during training and the needs of employers outside academia.

Institutional Responses: Towards a Pro-skills PhD

In Australia, increasingly the PhD is framed as instrumental to skills formation so that graduates can be drivers of innovation in a knowledge-based economy and be productive in diverse contexts. The current policy call is that in order to meet the emerging needs of the workplace and prepare research graduates for broad employment options outside academia, universities need to introduce new ways of training. The changes should aim at improving the responsiveness of doctoral training to the skills need of the workplace. Much of the narrative on the problem of unemployability among research graduates is linked to the perceived deficiency in transferable/generic skills. To address the problem, The Allen Consulting Group (2010) recommended that the government make "the delivery of professional development training an obligatory condition for PhD funding" (p.63). Following this report, the Government stressed the importance of training PhD graduates for jobs beyond academia and ensuring that they have the required skills to follow diverse career paths (DIISR, 2011b; DIISRTE, 2012). To address the skills gap among research graduates, the Commonwealth Government recommends:

> […] *a contemporary approach to research training* which continues to focus first and foremost on the development of the 'scholar' but places increased emphasis on the 'employee' and 'innovator'. (DIISR, 2011b, p.22, emphasis added)

In its consultation paper on quality research training, the Government further notes:

> In order to achieve appropriate professional skills development in HDR graduates, *a compulsory skills based coursework* component could be introduced to complement current HDR course requirements. (DIISR, 2011a, p.19, emphasis added)

Although different actors list slightly different sets of skills (see Table 1), core elements of the required generic/transferable skills doctoral graduate need to possess include communication skills, teamwork, enterprise/entrepreneurship, problem-solving skills, IT, and career planning.

[Insert Table 1 about here]

In order for a crisis discourse to be effective, actors capable of responding should perceive the problem in question as a threat (’t Hart & Tindall, 2009). In the case of the PhD crisis talk in the Australian policy setting, key agents such as the leaders of high-tier universities acknowledge the severity of the problem and appear to agree on the need for transforming the PhD towards a skills-oriented training. Both the Group of Eight and Universities Australia, the peak body of the nation’s universities, underscore that if Australia is to maintain its economic competitiveness and improve its global standing, there is a need for ensuring the quality and relevance of research training (Group of Eight, 2013; Universities Australia, 2013). To this end, they call for, among other things, an increased integration of career development courses with traditional PhD training. In *the Changing PhD*, the Group of Eight (2013) highlighted that doctoral programs should devise “a more explicit” skills development approach (2013, p.40). Similarly Universities Australia emphasises the importance of ensuring the responsiveness of doctoral training to national priorities through training “graduates for employment in the broader economy” (Universities Australia, 2013, p.4).

This has led to some tangible changes in the PhD with universities in Australia rejuvenating their doctoral programs. Here we briefly present three recently introduced pro-skills PhD programs: the Australian Technology Network Universities' *Industry Doctoral Training Centre* (ATN IDTC), the University of Queensland's *Career Advantage PhD*, and Monash University's *Monash PhD*. It should be noted that the comments provided in this overview are based on publicly available documents, primarily websites outlining these programs for prospective candidates. We have not engaged in an analysis of the programs themselves.

The Australian Technology Network Universities (ATN) Industry Doctoral Training Centre[5] (IDTC).

The IDTC was established in late 2011 with seed funding from the federal government to offer a new model of PhD training, based in part on the UK CDT model (discussed above). Although the *Cooperative Research Centres* (CRCs), which were established in 1990 to facilitate research collaboration between private firms and public universities, have been engaged in preparing 'industry ready' PhD graduates for non-academic jobs for over two decades in the context of wider industry collaborations (DIISR, 2008; Palmer, 2012), the IDTC offers the first exclusive industry-university collaborative focused exclusively on doctoral training. The program had its first intake of candidates in 2012 in mathematics and statistics in nodes at each ATN university. The new program benefits from increased financial and other contributions from industry partners (DIISR, 2011a). What is new in this collaborative doctoral training program is that candidates undertake research on areas of critical importance to an industry partner and they spend considerable time working at the site of the partner during the four-year candidature period. Most importantly, as stated in the home page of the Centre, the new model of PhD integrates three types of coursework: subject area and interdisciplinary courses; research methodology and research ethics courses; and

professional skills courses on leadership and communication, project management, research commercialization, and entrepreneurship.

There is also evidence of program re-development prompted by the PhD graduate employability crisis talk at some of Australia's elite research-intensive universities, namely the University of Queensland (UQ), based in Brisbane, Queensland and Melbourne's Monash University, in the state of Victoria. Research leaders at both universities explicitly acknowledge the validity of the skills deficiency argument in public statements (King, 2011; Skrbis, 2011) and have responded with new PhD programs that integrate career-enhancing skills training into traditional doctoral programs. For example, both Maxwell King (former Pro Vice-Chancellor, Research and Training, Monash University) and Zlatko Skrbis (formerly Dean of the Graduate School at University of Queensland, UQ and now Pro Vice-Chancellor, Research and Training, Monash University) attribute recent changes in the PhD programs at the two high-tiered universities as responses to unfavorable reports on employability skills of doctoral graduates (King, 2011; Skrbis, 2011). In what follows we briefly outline skills-injected PhD programs introduced at Monash and UQ since 2013[6].

The Monash PhD.

As of 2013 six faculties out of the nine of the university have commenced a new PhD program known has the Monash PhD[7.], The Monash PhD website indicates that by 2015, all faculties are expected to begin the new program. The purpose of the new PhD program is to incorporate generic/transferable skills with the traditional research training. Through integrating such generic skills as communication, project management, assertiveness and teamwork (King, 2011), the Monash PhD aims at widening graduates' employability in industry, academia, government and non-profit sectors.

The new program – branded ambitiously as a degree 'for the real world' – consists of two training packages: a) coursework units (commonly discipline specific units on research

methodology), and b) generic research skills training (RST) units. The seven RST units comprise Specialist (discipline-specific) training; Responsible, research; Professional skills; Research practice; Project Managements; Academic practice; and Technical skills.

The number of coursework units and hours required for RST units vary from faculty to faculty and even from department to department within a faculty[8]. The training packages are estimated to comprise a total duration of three months spread throughout the candidature period. Two research skills training units, namely Responsible Research and Research Integrity, are mandatory to all higher degree by research candidates and should be completed prior to confirmation (i.e., within 12 months of candidature).

UQ Career Advantage PhD.

Like its Monash counterpart, the Career Advantage PhD[9] at the University of Queensland (UQ) is intended as a curriculum response to the *skills deficiency* problem diagnosed in existing doctoral training programs in line with the wider crisis talk as discussed. According to Skrbis (2011), the Career Advantage Program at UQ is designed to interweave research capabilities and career possibilities "into a coherent whole" (p.54). The program aims to enhance employability of doctoral graduates through enabling them to develop 'elite skills' in their chosen career paths, helping them establish contacts with their future employers (including industry and government), developing their professional skills (in teaching, research and commercialization). As stated in the program description:

> UQ is introducing the Career Advantage PhD Program in response to empirically identified needs of research higher degree students. The new program will afford greater opportunity and choice to students and allow for a more multi-faceted research experience[10].

The new program consists of a three-day intensive workshop on pathway-specific career development, and other structured transferable skills training activities. After one year into

their candidature, based on career trajectories that they are most likely to follow, candidates can, in consultation with their supervisors, choose one of the following three career pathways:

(a) *Higher Education Practice & Leadership* – This pathway is for students who wish to follow careers in academia. The training package covers student learning, curriculum, research management and collaboration, research grant writing, teaching internship.

(b) *Research Innovation, Translation & Commercialization* – This is designed for candidates who want to gain experiences in commercialization, consultancy and advocacy. The module for this career pathway covers research commercialization, consultancy and advocacy, management, and industry internship.

(c) *Global Collaborations* – This is designed to prepare candidates for research careers in a global environment. The module for this career path includes topics such as international collaboration and linkage, professional networks, international business and globalization, enrolment in a joint PhD, and international lab placement (University of Queensland, 2013).

The pathway-specific modules are intended to facilitate cross-disciplinary collaboration between candidates across the university and to prepare doctoral graduates for three broad career areas: teaching, industry-research, and global research work. Media awareness training is included in all three pathway-specific training modules.

There are similarities and differences between the two pro-skills PhD programs. Both programs are underpinned by the urgency of making the PhD responsive to the needs of the workplace but neither the Monash nor UQ programs extend the standard candidature period. Candidates are expected to develop transferable skills while doing their core research project. There is also a strong tendency to use the new programs as an *institutional identity*. At UQ, the new PhD is thought to be a ‘unique’ trademark that differentiates the university from

‘domestic and international competitors’. At Monash, the new eponymous program is being promoted as ‘a PhD with purpose’ that prepares graduates to fulfil their career ambitions.

In both universities, professional development activities are not new inventions. Doctoral candidates have long had opportunities to attend non-mandatory less structured professional development training activities. What is new in the ‘new PhDs’ is that ad hoc approaches to career planning and skills training have become coherent, structured and branded as innovative institutional solutions to the perceived problems with doctoral education in the nation – at Monash and UQ, it seems, the PhD crisis is being averted.

The PhD crisis narratives and subsequent institutional responses are, we suggest, open to scrutiny for the degree to which they are silent on a range of issues that affect doctoral education that lie outside the current framing of the problem as one of employability. We take up these silences and omissions in the framing of the policy problem of the PhD and these proposed solutions in the next section.

Silences in the PhD Crisis Discourse

In a policy process, discursive structures that frame the public narrative construct those issues that are recognized as significant social problems, and exclude others. The specific use of concepts, categories and metaphors by politicians, civil servants, and the media implies the prioritization of some public concerns over others. The PhD crisis discourse, for example, has focused on how the problems of inefficiency and unemployability affect national socio-economic priorities, and underscores the urgency of putting relevant strategies in place to address these problems. In doing so, not only does it (over) simplify the problem but exclude other equally valid issues in doctoral education. This prompts the question of what is *not* being said in the PhD crisis narratives.

The loudest silence in the PhD crisis discourse is the omission of consideration of issues related to the *quality* of the research produced by candidates and the research training they receive. Quality considerations have been subsumed first by efficiency concerns (that is, how to produce more PhDs, with less wastage, in shorter periods of time) and more recently by relevance concerns expressed through concerns with graduate employability (that is, how useful are PhD graduates to the knowledge economy).

In Australia, universities significantly vary in many ways, including the proportion of academic staff with a doctorate, budget for research-related activities, and percentage of enrolment in research higher degrees. And yet almost all of them offer PhD programs. As some commentators have recently highlighted, this has implications for the quality of doctoral education in institutions. In his address to the Lowy Institute for International Policy, former Vice-Chancellor and President of the Australian National University and now Chief Scientist of Australia, Professor Ian Chubb argued that poor PhD outcomes are linked to poor research performance of universities in Australia. Chubb pointed to the stark differences among Australian universities:

> One university has 90% of its academic staff active in research while another has less than 3% active in research. […] One university devotes in excess of 85% of its budget to research-related activities while another spends less than 5% on research. (2009, p.5)

This wide variation in research funding, staff qualifications and research activity have direct implications for the quality of research training. Chubb concluded: "It is impossible to provide quality research training in an institution that is not performing quality research" (Chubb, 2009, p.8). These concerns are not evident in Government policy statements where it is held that in quality terms Australian research training was 'performing well' (DIISR, 2011a).

Again, in the crisis discourse, it is not clearly articulated how the problems with the PhD relate to the nation's strong position in the *global higher education market*. Education is one of Australia's top exports (generating over 15 billion dollars a year) and the Government is conscious about sustaining revenue through attracting full fee-paying international research candidates (Australian Government, 2012). On the one hand, sustaining this lucrative market requires ensuring the international standing of research training programs, including the PhD. For this, the Government has stated its aim to increase the number of Australian universities in the world's top 100 to ten by 2025 (Australian Government, 2012, p.171). This brings to forefront two important issues. Firstly, these rankings are overwhelmingly determined by research outcomes (Hazelkorn, 2007; Marginson and van der Wende, 2007; Hou et al, 2012). As such, increasing the number of top ranking universities necessitates a strong financial and political commitment to improving the quantity and quality of university research outputs. Secondly, the changes being introduced in the PhD programs largely draw on assessments that focus on skills deficiency problem in relation to the local jobs market and not to the quality of the research produced by graduates. The emphasis on the needs of the Australian knowledge economy as an end user of PhD graduates may not mesh well with the expectations and learning needs of international research candidates and the expectations of many national governments sponsoring them. .

Further, the supply-side management of PhD graduate employability is founded on the assumption that skills acquired in doctoral education should transfer into the workplace; and that the workplace prioritises generic skills over subject area expertise. While there are studies on the positive link between PhD graduates' perception of skills acquisition and productivity at work (e.g., Platow, 2012), the assumptions of a 'linear transference' of skills from the learning context to the workplace as held by the pro-skills PhDs is questionable (Mowbray & Halse, 2010; Tomlinson, 2012). Related to this, in 2009, 62% PhD candidates

in Australian universities were over 30 years of age (DIISR, 2011a); and the average age of Australian doctoral candidates is 37 years (Evans et al., 2008). In other words, most of the PhD candidates in Australian universities possess considerable life and work experience and it is questionable to what extent those mature graduates might benefit from professionalisation training.

The skills-injected PhD approach assumes that the deficit in the PhD employability formula lies with the graduates. Defining employability solely in terms of individual characteristics (skills acquisition) ignores equally important factors within the job market and changes in the economic system in general. Graduates' career disposition and motivation, employers' support in the form of professional development opportunities, and the organization of work and business are crucial factors of productivity. As Tomlinson (2012) notes: "graduates' successful integration in the labour market may rest less on the skills they possess before entering it, and more on the extent to which these are utilised and enriched through their actual participation in work settings" (p.425). It is also important to note that skills-injected PhD programs are underpinned by *exaggerated expectations* of the values of transferable skills in enhancing employability of doctoral graduates. Not all employers in business are captivated about the value of soft skills in the workplace. An OECD study shows that large R&D companies in Europe preferred graduates with deep disciplinary knowledge and expertise (Borrell-Damian, 2009).

The policy discourse is also essentially silent on the importance of striking a balance between immediate economic significance of the doctoral qualification and its value as preparation for scholars. In the current debate about the PhD, there appears to be a tension between universities' traditional role of cultivating stewardship – preparing candidates to become scholars who discover, disseminate, and apply knowledge in their disciplines (Golde, 2006), and new expectations for 'knowledge workers'. In Australia, as is the case elsewhere,

the public discourse on the purpose of universities has considerably shifted over time. About five decades ago, a national HE system review (known as the Murray Report) identified three key roles of universities in Australian society: educating people, maintaining intellectual standards and integrity, and research – that is, specifically, "the discovery of new *knowledge for its own sake*" (Murray, Ross, Morris, Reid & Richards, 1957, p.120, emphasis added). However, with the prevalence of the knowledge economy agenda in which "knowledge is valued for its strict utility rather than as an end in itself or for its emancipatory effects" (Peters, 2002, p.148), the dominant discourse about the PhD has been framed in terms of a timely production of 'knowledge workers' needed for economic productivity.

This increased economization of education overlooks broad societal benefits of the intellectual virtues of advanced studies, including the PhD. In the face of today's speedy changes in the work world, generic skills and specialist knowledge are inadequate to handle an unfamiliar problem in an unfamiliar context. That is to say, in the globalizing world and all of its associated uncertainty, the prosperity of a democratic society depends more on 'critical and imaginative capacities' of citizens (Nussbaum, 2006) than acquisition of a set of skills that meet immediate market needs. As Ronald Barnett, one of the world's leading scholars of higher education, rightly observes: "the situations in which graduates are likely to find themselves through the rest of their lives are likely to be positions of open-endedness, of value conflict, of insufficient information and so forth; in short, situations of complexity" (2006, p.51). In this scenario, Barnett argues, HE institutions need to prepare their graduates in a way they can endure profound and rapid changes; and for this, the most important attributes are "qualities of courage, resilience, fortitude and quietness" as well as dispositions "towards self-change, engagement with the world, inquisitiveness, and a will to communicate" (Barnett, 2006, p.61). Hence, the logic of restructuring the PhD predominantly on the basis of skills is problematic.

Concluding Remarks

At present the widely shared policy assumption is that knowledge-driven economic growth is predicated on strong research training systems that support sustainable and useful knowledge production and innovation. The selection of PhD policy discourses and selected institutional responses to the perceived crisis in doctoral education presented in this study participate in this broad policy direction. There is an urge for the PhD to become more 'worldly' – to be responsive to the changing needs and priorities of society. The movement towards a pro-skills PhD outlined in this paper conceals or obscures other crucial issues related to doctoral education which are equally deserving of attention. For instance, the quality of the actual research training graduates receive and the quality of the research they produce is glossed over with efficiency, relevance and employability serving as proxies for quality.

The efficiency paradigm insists on getting more and more for less and less. Quality doctoral education requires investments in quality supervision, sufficient resources (including scholarship support), and learning experiences (including the curricula) that match career aspirations and experiences of candidates. Transformative doctoral programs start with the recruitment of qualified candidates. It is hardly possible to ensure quality and relevance of doctoral qualifications unless the candidates have the necessary aptitude and commitment to undertake original research and endure the challenges of doing it. None of these issues is adequately addressed in the present framing of the challenges facing doctoral education.

Some aspects of the problem of the PhD have systemic roots, and may not be addressed by institutional responses alone. While it is essential to align PhD enrolment with labour market forecasts, conversely, the problem can also be with the way work is organised and operated. Changes may be required at the employers' end so that they are able fully to exploit the skills and knowledge of doctoral graduates. The issue of the PhD-ready industry is rarely, if ever, addressed.

To conclude, it is hard to improve on the the words of Lee S. Shulman: "The best doctoral programs attempt to discover the 'sweet spot' between conservation and change by teaching skepticism and respect for earlier traditions and sources while encouraging strikingly new ideas and courageous leaps forward" (quoted in Walker et al., 2008, p.2). Our concern remains that the current framing of the 'crisis' in doctoral education and the limited and insufficiently examined assumptions behind some Australian responses to this crisis omit too much from consideration. By reducing consideration of the doctorate to concerns about efficiency, relevance and employability, much is left outside the frame. Within such a narrow frame and with so many silences, omissions and blindspots, the sweet spot identified by Shulman may be overlooked or not seen for what it is. That is, impelled by crisis thinking, we may rush to 'fix' a PhD which is not as broken as many hold it to be.

Notes

[1] Although the origin of doctoral education dates back to 12th century Europe, the PhD as we know it today came into existence in the early 19th century with the establishment of the research university in Prussia, in present day Germany. In other parts of the world, the PhD was conferred much later: in the USA, in 1861 (Yale University); in Britain, in 1917 (the University of Oxford); and in Australia in 1948 (the University of Melbourne). The doctoral qualification had its critics at least a century ago as well. In 1903, in his commentary, *The Ph.D. Octopus,* William James argued that the doctorate 'fostered academic snobbery'.

[2] See http://www.newroutephd.ac.uk/

[3] The Group of Eight (Go8) represents a coalition of Australia's eight elite research-intensive universities, namely, The University of Adelaide, The Australian National University, The University of Melbourne, Monash University, The University of New South Wales, The University of Queensland, The University of Sydney, and The University of Western Australia.

[4] It is noteworthy that the federal department related to tertiary education has undergone a series of name changes. The name changes imply the shifting policy framework towards industry and innovation. Some of recent name changes include Department of Innovation, Industry, Science and Research (DIISR); Department of Innovation, Industry, Science, Research and Tertiary Education (DIISRTE); and Department of Innovation, Industry, Climate Change, Science, Research, and Tertiary Education (DIICCSRTE). Under the new Liberal

Coalition government of Tony Abbott (elected on 7 September 2013), the composite education-industry department was abolished (September 18, 2013), and part of its major functions has been transferred to newly formed Departments of Industry and of Education.

[5] ATN is a national alliance of five technology universities, namely, Curtin University of Technology, University of South Australia, RMIT University, University of Technology Sydney and Queensland University of Technology. See www.atn.au/IDTC/index.htm

[6] Monash introduced the new program in January 2013, see http://monash.edu/migr/why-monash/phd/; At UQ, candidates who are confirmed after 1 January 2013 are eligible to choose one of the career-path modules, see http://www.uq.edu.au/grad-school/career-advantage-phd/index.html

[7] See http://www.monash.edu.au/migr/why-monash/phd/

[8] For instance, in the current arrangement, in the School of Social and Political Sciences at Monash University, to satisfy the requirements of his or her PhD, a candidate should take one mandatory coursework unit and complete 96 hours RST activities. From this, prior to confirmation the candidate should complete the coursework unit (Advanced Research Methods in the Social and Political Sciences or Researching the EU from a Global Perspective) with a total of 12 credit points through on-campus delivery mode; and two core RST units: Research Integrity (online, 10 hrs) and HDR Induction (on-campus, 2hrs).

[9] See http://www.uq.edu.au/grad-school/career-advantage-phd/about

[10] See http://www.uq.edu.au/grad-school/career-advantage-phd/why-is-uq-introducing-this-program-164611

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